THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

TOWNSHIP OF LONGLAC

DISTRICT OF THUNDER BAY

1967

REPORT

ON A

WATER POLLUTION SURVEY

OF THE

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DISTRICT OF THUNDER BAY

1967

DISTRICT ENGINEERS BRANCH

DIVISION OF SANITARY ENGINEERING

ONTARIO WATER RESOURCES COMMISSION

REPORT

INTRODUCTION

A water pollution survey was conducted in the built-up areas of the Township of Longlac on July 11 and 12, 1967.

Mrs. B. Clark, Clerk-Treasurer, and Dr. E.R. Mainman, Medical Officer of Health, provided information pertinent to the survey. Mr. R. Quirion, Works Superintendent, assisted in the sampling programme.

GENERAL

The Township of Longlac, in the District of Thunder Bay, has a population of 1428 (1967 municipal directory). Most of the population is located in an urban area which is situated along a section of the east shore of Long Lake near the mouth of the Kenogami River. The Suicide River flows in a westerly direction along the southern areas of the town and discharges into Long Lake.

General drainage from the town discharges into Long Lake or into a swampy area which is adjacent to, and part of the Suicide River watercourse.

Open street-side ditches and other open ditches, provide the means for local surface-water and storm water drainage.

SEWERAGE

Two sections of the Town, designated on the accompanying plan as area No.1 and part of area No.2 are partly serviced by municipal water works and sanitary sewers.

Sewage collected in Area No.1 is discharged without treatment into an open ditch through which it flows into an adjacent swamp area for disposal. The swamp area constitutes a portion of the Suicide River watercourse and lies between the River and the Townsite.

Sewage collected from area No.2 is discharged into a 6 inch cast iron sewer and is conveyed to a municipal septic tank for treatment. Effluent from the treatment system is discharged into a swamp area for disposal. This area also extends to the Suicide River. Parts of area No.2 that are not serviced by sewage collection include properties along Kenogami Drive, Benson Avenue and approximately 15 properties in the eastern section.

The No.3 area, as indicated on the map, is situated north of No.11 Highway. No municipal sewage collection services, and only a few water services are provided in this area. Individual septic tank systems are reportedly in use for sewage treatment, and shallow dug private wells provide the water supplies.

In general the septic tank systems currently being utilized are not providing satisfactory treatment. This is primarily because of the poor absorption quality of the soil, and the presence of a high water table. It is also known that septic tank systems have been installed without supervision or inspection, and that many of these systems are not complete with adequate field tile disposal beds. The lack of satisfactory disposal beds necessitates the

discharge of inadequately treated septic tank effluents directly into surface-water drains. This practice creates a potential health hazard as well as contributing to water pollution.

MISSION RESERVE - INDIAN RESERVE No. 58

Another built-up area of the Township, located on the north shore of Long Lake and west of the Kenogami River, identified as the Mission Indian Reserve No.58, was included in the water pollution survey.

The built-up area of the reserve is on an oval shaped peninsula estimated to be an average of 300 feet in width and 800 feet in length. There are approximately 30 houses, 1 rooming house 1 school, and 1 church located around the perimiter of the area. The population is estimated at 125 to 150 persons.

SEWAGE TREATMENT-MISSION RESERVE

Outside privies are being used by some households, other privies adjacent to houses have been upset or are in states of dilapidation which make them useless. Other residences have no outside privy. It was reported that in many instances human excreta is discharged into a container and thrown on the ground outside of the houses or directly into the lake. During the winter, garbage, human excreta, etc. are reportedly piled on the ice of the lake and thus gain access to the water when the ice melts.

WATER SUPPLY - MISSION RESERVE

A well is located on the church property. Several

residents interviewed stated that they used water taken directly from the lake for domestic supplies. No communal water supply system is available.

WATER POLLUTION - MISSION RESERVE

A water quality survey of waters adjacent to the mission reserve was made at the time of inspection.

The sanitary chemical analyses and the results of bacteriological examinations of water samples collected from Long Lake are as follows:

Sample No.	Location of Sampling Point	5-Day BOD (ppm)	SOLIDS (ppm) Total	Susp.	Diss.	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml Most Probable Number
1.	South-east adjacent water area.	0.5	124	5	119	0.0	2300
2.	North-west adjacent water area.	3.3	130	21	109	0.1	430
3.	North-east adjacent water area.	0.8	116	11	105	0.0	23
4.	South-west adjacent water area.	0.4	112	9	103	0.0	1500

The laboratory analyses indicate a condition of satisfactory water quality in the water areas of Long Lake adjacent to the Mission Reserve at the time of inspection. However, considering the methods of waste disposal and the general unsanitary practices throughout the area, potential sources of water pollution and health hazards exist.

WATER POLLUTION - URBAN LONGLAC

As a measure in assessing the level of pollution in the municipal surface-water drains and adjacent water areas, water samples were collected from representative locations and submitted for laboratory analyses.

The sanitary chemical analyses and the results of bacteriological examinations of the samples are presented in Table I.

The locations of sampling points are indicated on the accompanying map.

INTERPRETATION OF LABORATORY ANALYSES

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission objectives for water quality pertaining to surface-water drains, watercourses, and water areas are as follows:

Surface-Water Drains and Storm Sewers

5-Day BOD (Biochemical Oxygen Demand)
- not greater than 15 ppm (parts per million)

Suspended Solids Content
- not greater than 15 ppm (parts per million)

Coliforms - MPN (Most Probable Number)
- not greater than 2400 per 100 ML (Millilitres)

Anionic Detergent (as ABS)
- the presence of anionic detergent usually indicates pollution from domestic sources.

Watercourses and Water Areas

5-Day BOD (Biochemical Oxygen Demand)
- not greater than 4 ppm (parts per million)

Coliforms - MPN (Most Probable Number)
- not greater than 2400 per 100 ml (Millilitres)

SIGNIFICANCE OF LABORATORY ANALYSES

It is noted that the sanitary chemical analyses and the results of bacteriological examinations of all samples collected from the municipal surface-water drains, and from the private drains examined, are greatly in excess of the water quality objectives. It is therefore indicated that conditions relative to gross pollution exist in the surface water drains throughout the urban areas of Longlac. The presence of anionic detergent and the excessively high coliform counts of samples collected from the municipal surface-water drains indicate that sanitary sewage and other domestic wastes are the probable sources of pollution.

All surface water drains examined in the section of Longlac North of Highway No.11 contained visible evidence of untreated wastes and sewage. Attention is drawn to the extreme conditions of pollution as indicated by the analyses of samples collected from drains at the east end of Riverview and Queen Streets, and at points along Forestry Road extention. (Sample Points No.1,2,3,4,5,6,7)

The analyses of samples collected from discharges from drains servicing Kenogami Drive and Benson Avenue areas (Sample Points No. 8,9, and 10) similarly indicated conditions of gross pollution.

Visible characteristics of polluting materials were prevalent at the points of discharge into Long Lake. These conditions constitute a definite health hazard in addition to contributing to water pollution.

Materials collected in the Area No.1 (Townsite) sewer system and discharged without treatment through the extended sewer into the swamp area (Sample Point No.12) are also contributing to pollution in the Suicide River watercourse.

The laboratory analyses of samples of the effluent collected from the municipal septic tank system (Sample Point No.13) indicated that satisfactory treatment was not being provided in the system. The effluent is discharged into the afore-mentioned swampy area adjacent to the Suicide River watercourse. This procedure is therefore considered a source of pollution of the watercourse.

SUMMARY

A water pollution survey was conducted in the Township of Longlac on July 11, 1967.

All surface-water drains investigated in the urban Longlac areas were grossly polluted. The extremely high biochemical oxygen demand and the excessively high coliform counts, in conjunction with concentrations of anionic detergent, indicate inadequately treated sanitary sewage and other domestic wastes to be the probable sources of the pollution.

Sanitary sewage and domestic wastes observed in open ditches in Area No.3 and in the western section of Area No.2 present

potential health hazards, and the discharges from these areas definitely contribute to water pollution.

The discharge of untreated sewage from Area No.1 into the adjacent swampy area is a source of pollution to the Suicide River.

The discharge of inadequately treated waste from the municipal septic tank system is also contributing to pollution in the Suicide River.

It was reported at the time of the survey than an engineering firm had been retained by the municipality to determine requirements for sewage collection and treatment.

RECOMMENDATIONS

In consideration of the observations and findings of this water pollution survey, the following recommendations are presented:

1. The Township of Longlac should continue its pollution abatement programme by providing the necessary means to prevent the discharge of untreated and inadequately treated waste and sewage into the adjacent water areas and watercourses.

Necessary measures will include the installation of sanitary sewers for sewage collection and the construction of an adequate system for sewage treatment.

2. In the event that the institution of such a system is not feasible, it will then be necessary that the municipality take immediate measures to ensure that all private drains, from which inadequately treated wastes are being discharged to any surface-water drain or water area are located and severed.

This action will therefore require each property owner to provide a means of adequate treatment for his own wastes.

3. Measures should be instituted to ensure that adequate methods for the treatment and disposal of sanitary sewage and domestic wastes are provided and used by residents of the Mission Indian Reserve.

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Approved by _____

J. M. Timko, P. Eng.,
District Engineer,
Division of Sanitary Engineering.

Prepared by:
J.K. Ferris,
Technician.

TABLE I

TOWNSHIP OF LONGLAC - WATER POLLUTION SURVEY

SURFACE WATER DRAINS

Sample No.	Description of Sampling Points	5-Day BOD (ppm)	SOLIDS (ppm) Total	Susp.	Diss.	Anionic Detergent ABS (ppm)	Total Coliforms per 100 ml MPN
1.	Forestry Road-North	25.0	1,094	67	1,027	3.4	11,000,000 +
2.	Riverview St.-West	355.0	1,658	720	938	16.4	4,600,000 +
3.	Riverview St.-East - North Side	520.0	4,710	3,662	1,048	33.0	11,000,000 +
4.	Riverview St.-East - South Side	2,350.0	26,942	25,784	1,158	61.0	11,000,000 +
5.	Ditch-East of Longlac Motel	700.0	6,388	5,776	612	15.5	11,000,000 +
6.	Queen St.-West	14.0	1,194	10	1,184	0.6	11,000,000 +
7.	Ditch-Forestry Rd. at Queen St.	3,000.0	8,030	7,426	604	58.0	11,000,000 +
8.	Kenogami Rd.- North	17.0	382	105	277	1.4	11,000,000 +
9.	Kenogami Rd.- South of York St.	24.0	936	112	824	0.4	2,400,000
10.	Kenogami Rd.- North of Benson	250.0	2,766	1,654	1,112	10.5	2,400,000

TABLE I CON'T.

Sample No.	Description of Sampling Points	5-Day BOD (ppm)	SOLIDS (ppm)			Anionic Detergent ABS (ppm)	Total Coliforms per 100 ml MPN
			Total	Susp.	Diss.		
11.	Wellwood Plywood Co. -Septic Tank discharge	19.0	550	217	333	0.2	23,000
12.	Townsite Sewer discharge	24.0	238	59	179	0.3	11,000,000 +
13.	Municipal Septic Tank discharge	146.0	382	224	358	5.8	11,000,000 +

TO NAKINA

C N R

OAKES TWP.

DALEY TWP.

RIVER

KENOGAMI

TO GERALDTON

C N R

LONGLAC STATION
CAN N R.

SWAMPY AREA

INDIAN RESERVE
58

(SEE INSERT)

2 D

1 D

6 D

RIVER VIEW ST.

QUEEN ST.

AREA 3

8 D

7 D

3 D

4 D

5 D

HIGHWAY NO 11

9 D

10-15 HOUSES
SEPTIC TANKS
WITH FIELD TILES
IN THIS AREA

TO HEARST

SEWAGE PUMPING
STATION

RD.

ROAD

AREA 2

SEPTIC TANKS

DIEPPE

FORESTRY

ALBANY PLACE

BENSON AVENUE

10 D

HUDSON AVENUE

SEWAGE PUMPING
STATION

LAKE

LONG

SEWAGE LIFT STATION

BAYVIEW

ALDER AVE.

STREET

LAKEVIEW

DRIVE

ROAD

POINT

WATER WORKS

PARK ST

POPLAR ST

PINK ST

SPRUCE

HILLCREST

STREET

BIRCHCREST ST

PICNIC

AREA 1

8" ø CLAY SEWER
TO THIS POINT

KIMBERLEY CLARK
SHOPS

OPEN SEWAGE DITCH (FLOWING)

12 D

6" ø C.I. SEWER (2700' LONG)

SWAMP

20' x 50' x 15' DEEP WOOD
SEPTIC TANK. (DITCHES TO
SWAMP FOR EIFFLUENT)

13 T

EFFLUENT DITCHES

WELDWOOD OF
CANADA LTD.

PLANT
OUTFALL

SEPTIC TANK

11 T

RIVER

SUICIDE

SWAMP

RIVER

GROUND

MAKING

TO THERESIA

I.R. N°58

LONGLAC

HWY 11

LONG
LAKE

1" = 2 MILES

LEGEND

- OPEN DRAINAGE DITCHES WITH SEPTIC TANK EFFLUENT LINES CONNECTED
- SANITARY SEWERS
- D – DITCH
- T – TREATMENT PLANT
- D / 1 – OUTFALL SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION

PLAN OF LONGLAC

POLLUTION SURVEY

JULY 25, 1963

SCALE 1" = 400 FT.	
DRAWN BY : O.F.	DATE : MARCH 14/63
CHECKED BY : S.H.	DRAWING NO. : 63-106